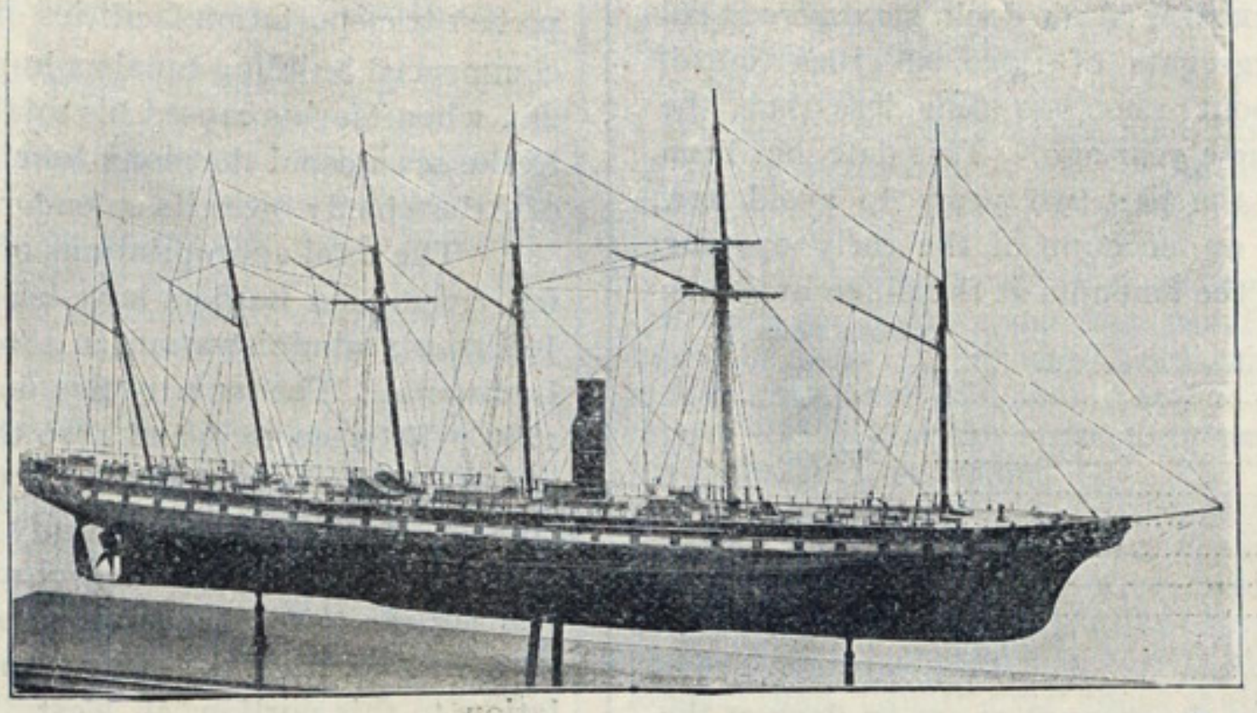
MARINE REVIEW.

VOL. V. CLEVELAND, OHIO, THURSDAY, APRIL 21, 1892. No. 17.

Progress in Marine Engineering.

The four illustrations on this page from "Ocean Steamships," an article appearing recently in Scribner's, present a graphic history of the advance in marine engineering during the past eighty years. The peculiar looking apparatus represents the engine of the Comet, the first steamboat constructed and used for serviceable purposes in Great Britain. This steamer was built by Henry Bell on the Clyde in 1812, was 40 feet long, 10 feet broad and measured 24 tons. Her engines were of 4 nominal horse power and they drove the boat 5 miles an hour between Glasgow and Greenock. The passenger service between these cities now includes the Duchess of Hamilton, 250 feet long, 30 feet beam, and 10 feet deep, and having engines 34½ and 60 inches diameter with 60 inches stroke which drive the boat 18 knots an hour. But the comparison of the engineering department should be made with the 9,000 horse power twin-screw engines of the cruiser for the British navy, which are also shown among the engravings. They were built by the Earle Shipbuilding Company, Hull. This is the class of engine that gives a horse power for every 2 hundredweight of machinery, and when forced draft is employed as low as 1.6 hundredweight give a horse power, while the coal consumption averages only 1½ pounds per horse power.



PIONEER OF OCEAN GREYHOUNDS.
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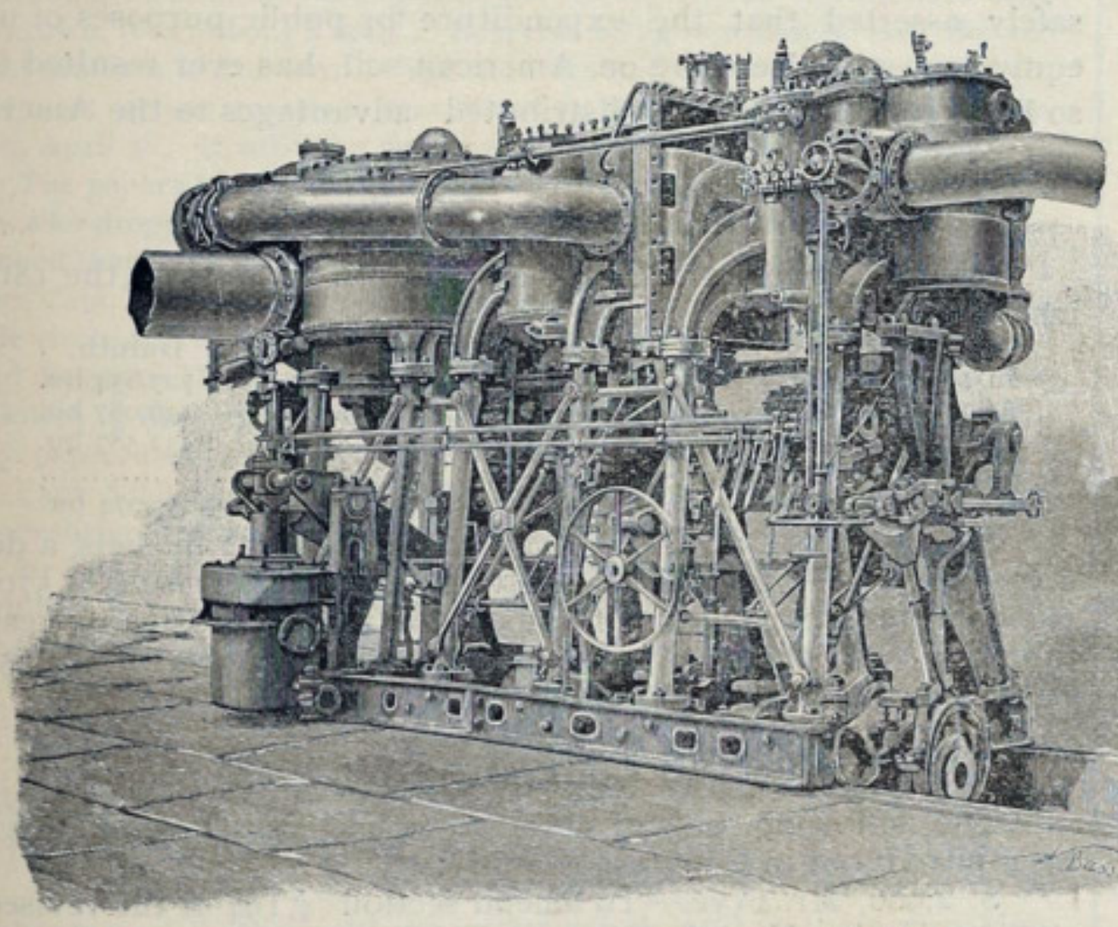

MODERN ENGINES OF A WAR VESSEL.
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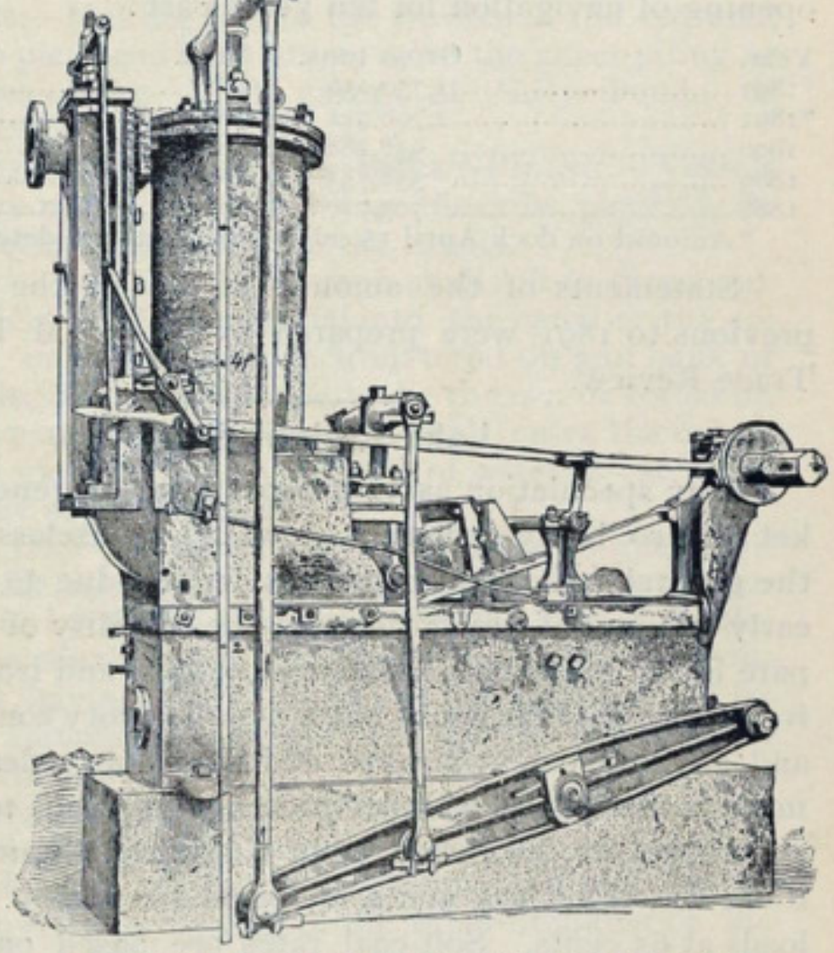
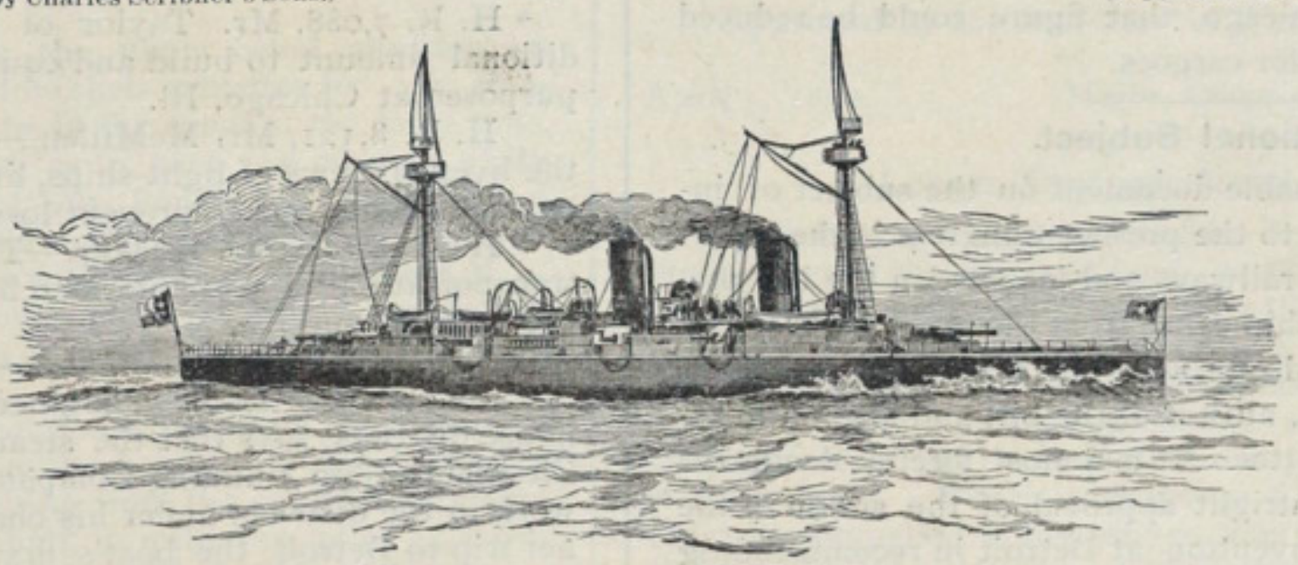


ENGINES OF FIRST BRITISH STEAMBOAT.
(Copyright by Charles Scribner's Sons.)



MODERN CRUISER.
(Copyright by Charles Scribner's Sons.)

The six-masted steamship, also shown in the drawings, was the Great Britain, the pioneer of ocean greyhounds. She was built in 1839, for the Great Western Company, a corporation formed by Mr. Samuel Cunard, who went to England from Halifax, N. S. The Great Britain embodied two novelties for a large ship—an iron hull and a screw propeller. The credit of introducing iron hulls belongs to John Laird of Birkenhead, who in 1829 built a 60-foot lighter and in 1833 an iron paddle wheel steamer 133 feet long. The first iron boat in American waters was built by Laird for G. B. Lamar of Savannah and was called the John Randolph. The only vessels of iron having screw propellers previous to the Great Britain were at least six times as small. In 1836 a Swede

had shown the practicability of the screw in a Thames-built vessel 45 feet long that made 10 miles an hour and towed a large packet ship at good speed, It seems queer that the first successful use of this method of propulsion was made with twin screws. Commodore Stockton encouraged Ericsson by ordering two vessels with screws for our navy, thus giving America the honor of introducing screw propulsion. From the Great Britain a great leap is made to a modern war-ship, the Chilian cruiser Esmeralda, built at Newcastle. She is 270 feet long, 42 feet beam, 18.3 feet draft and develops 6,500 horse power.

Iron Ore on Dock at Lake Erie Ports.

Reports to the MARINE REVIEW from dock managers at all Lake Erie ports show an aggregate of 1,750,256 gross tons of ore on dock April 15, or about 1,000,000 tons less than the amount held over at this time a year ago. This date has been selected instead of May 1 for the past two years to avoid new supplies coming to the docks on account of the early opening of navigation. Following are the amounts at the different points:

Name of Port.	Gross Tons.
Buffalo	66,734
Erie	129,573
Ashtabula	512,125
Fairport	296,990
Cleveland	445,887
Lorain	130,000
Huron	10,645
Sandusky	88,800
Toledo	69,502
Total	1,750,256

The following table shows the amount of ore on dock at the opening of navigation for ten years past:

Year.	Gross tons.	Year.	Gross tons.
*1892	1,750,256	1887	149,304
*1891	2,708,421	1886	373,521
1890	936,288	1885	556,657
1889	558,753	1884	388,739
1888	703,720	1883	524,749

* Amount on dock April 15; all other items are date of May 1.

Statements of the amount of ore in the foregoing table previous to 1891 were prepared by Mr. W. M. Day of the Iron Trade Review.

Lake Freight Situation.

Any speculation as to prospects in the general freight market now so badly demoralized would be useless at this time, as the general reduction in rates is largely due to the unexpected early opening of navigation and the inability of shippers to prepare for an immediate movement of coal and iron ore. Reports from all Lake Erie docks show a satisfactory condition of stocks, and any movement toward additional ore sales would change matters materially. Under present conditions tonnage could, in all probability, be charte redfor single trips from Ashland at $1, if ore was to be had, and some boats are unable to find Escanaba loads at 65 cents. Soft coal rates are based on 40 cents to the head of Lake Superior, and although late charters were at 50 cents to Milwaukee and Chicago, that figure could be reduced under the present pressure for cargoes.

A National Subject.

Probably the most valuable document on the subject of inland navigation presented to the present Congress is the report of the House committee on railways and canals, in the bill providing for a survey for a ship-canal from the great lakes to the navigable waters of the Hudson river. The report was presented by Hon. Henry W. Bentley, author of the bill and also an influential member of the committee. It is a most forcible document on the subject and an outright approval of the action of the recent deep waterways convention at Detroit in recommending an investigation of this subject. The national character of the improvement is shown in a history of consideration given to the subject by Congress in previous years from the earliest history of the government, and there is appended to the report various statements, papers and tables, containing interesting and valuable information and statistics having an important bearing upon the question.

"In England," says the report, "$60,000,000 is being expended to connect one city with the sea, Manchester and Liverpool. Germany, in 1887, ordered the construction of more than 1,000 miles of new canal navigation in addition to the 1,289 miles then operated and the 4,925 miles of then available navigable rivers. France has expended since 1814 upon the improvment of her harbors and waterways more $650,000,000, in addition to $700,000,000 out of the state treasury for railways. She has 7,500 miles of canal and river navigation and the completest transportation facilities of any nation in the world. She commenced building canals a hundred years before the Christian era, when Marius caused his soldiers to excavate from the Rhone to the sea a canal that long bore his name and to which the city of Arles chiefly owes its splendor.

"The total appropriations of the United States government for rivers and harbors have been $204,137,649. They began in Jefferson's administration, in 1800, with $25,000 in the state of Louisiana. The sum of $14,699.745 was expended previous to 1860. Between 1860 and 1870 the amount was $12,789,182; between 1870 and 1880, $68,035,656; between 1880 and 1890, inclusive, $108,613,066, or only $204,000,000 in a century for great objects of national development. Of this total amount $28,417,182 only have been expended within the great states bordering on this lake system and for its improvement. In relation to this portion, at least, of the total appropriations for for rivers and harbors since our national life began it may be safely asserted that the expenditure for public purposes of no equivalent sum elsewhere on American soil has ever resulted in so large and so equitably distributed advantages to the American people.

Grain at Chicago and Duluth.

Stocks of wheat at Chicago and Duluth on Monday, the 18th inst. were:

	Chicago.	Duluth.
In store	8,728,111 bu.	14,727,854 bu.
Afloat		536,087 bu.
Increase last week		1,432,587 bu.
Decrease last week	592,387 bu.	
Excess over same time last year	2,834,897 bu.	9,650,074 bu.

Stocks of corn in Chicago aggregate 1,980,752 bushels, a decrease of 545,884 bushels for the week and an increase of 1,570,084 bushels as compared with stocks on the same date last year. Stocks of oats foot up 412,794 bushels as compared with 420,358 bushels on the corresponding date last year.

Fifty-Second Congress—First Session.

The following bills of interest to lake vessel owners have been introduced in Congress recently:

S. 2,906, Mr. Frye.—To amend section 4,194 of the revised statutes of the United States, relating to certificates of title to vessels.

H. R. 7,088, Mr. Taylor of Illinois.—To provide an additional amount to build and equip a steam vessel for boarding purposes at Chicago, Ill.

H. R. 8,121, Mr. McMillen.—To secure better protection of the lives of crews of light-ships, light-house tenders and revenue marine vessels, and to prevent loss or damage to said vessels.

H. R. 8,124, Mr. Hooker.—To extend the privileges of the transportation of dutiable merchandise without appraisment to the port of Dunkirk, N. Y.

Col. William Ludlow, engineer of Ninth and Eleventh light-house districts, says that the steamer Amaranth, built by the Cleveland Ship Building Company, for light-house construction work in the districts under his charge, is a great success. On her trip to Detroit, the boat's first voyage, she encountered a fresh north-easterly gale on Lake Erie and proved a good sea boat. No attempt was made to speed the boat, on account of the engines being without previous work, but she made twelve miles an hour crossing the lake and 13¼ miles an hour in the Detroit river.

CHICAGO LAKE INTERESTS.

WESTERN OFFICE, MARINE REVIEW,
No. 210 So. Water Street, CHICAGO, Ill., Apr. 21.

Who is going to pay for these groundings at Grosse point? The underwriters all solemnly declare that the Detroit compact is in full force, yet boats have not lessened their draft of water materially. At the Detroit meeting it was decided that no rebate should be allowed on insurance for first half of April not used. Nevertheless, a surprisingly large number of craft waited here until after April 15. In fact, they acted as if rebates had been quietly allowed. It would be absurd to suppose for an instant that any of the gentlemen represented at the Detroit love-feast had knowingly violated any pledges, based on sacred honor of gentlemen. Such doubt ought not to be entertained in an affair among gentlemen, but it is a fact that the underwriters are very alert, and some say right out loud that somebody is cutting the tariff by granting unauthorized favors.

The trouble between the Seamen's union and the Knights of Labor here can have but one termination. Some one is going to be killed, and then an enraged public sentiment will put a stop to outrages on men whose only offense is that they want to work. Whatever may be one's sympathies in the labor question, there can be but one opinion in regard to the assaults which have been so numerous along Chicago river this spring. They are without excuse, brutal and cowardly. Any jury would acquit the man who defends himself from the attacks of these ruffians who have disgraced the labor cause this season. It is quite useless for the Seamen's union to disclaim responsibility in this matter. No one can find fault with legitimate persuasion, but suasion when it takes the guise of blows, kicks and vicious assaults, becomes a crime against the rights of others. Crimes always carry their own punishment before the end is reached.

The expansion of the Lake Carriers' Association, as proposed by the recent Detroit meeting, appears to be a wise move. The old name should not be changed, however much the scope of the organization may be. The lake carriers have made an honorable name, free from tarnishment. If in the growth of the lake marine, the old association should have been outgrown, it is nobody's fault. New eras bring new issues, and the old must conform to the new, but the time-honored names are always the best. The most serious questions ever raised on the lakes will come up at Detroit, April 28. It will take much wisdom to meet them.

The papers have had a good deal of trouble over a Capt. Martin Johnson, who dropped dead of heart disease at Ashtabula last Saturday. It developed that there are any number of Capt. Martin Johnson's and as many more Capt. Louis Johnson's here, all of whom are lake-faring men with a wide circle of friends. Hereafter, correspondents and reporters should send diagrams along with these items in order that wrong men may not be killed in the public prints, to the sorrow of relatives and friends. Chicago papers had two Johnsons dead before the right one was found.

Capt. Nicholson is back for his twenty-second year as commodore of the Peshtigo Company's lumber fleet. His company has made it impossible for this general navigator to change, for his salary has been put so high that he could not find any one else to meet the figure, even if he tried.

Portage Lake Canal Rules.

Rules and regulations for navigation of the Portage lake and Lake Superior canals, Keweenaw point, Michigan, now controled by the government, are as follows:

1. AUTHORITY OF CANAL OFFICERS.—The movement of all boats and floating things in the canal, and in the approaches thereto, shall be under the direction of the superintendent, or his authorized assistants.

2. SIGNALS.—On entering the upper canal at either entrance, steamers or tugs must blow their whistles for one minute, and in case two boats shall be in the canal at the same time, each shall so modify its speed as to pass the other at "Lily Pond," and when one arrives at "Lily Pond" before the other a stop must be made until the other arrives and passes. In navigating the lower canals vessels will be governed by Rule V, of rules and regulations for the government of pilots navigating seas, gulfs, lakes, bays, sounds or rivers, adopted by the board of supervising inspectors.

"Rule V.—Whenever a steamer is nearing a short bend or curve in the channel, where, from the heights of the banks or other cause, a steamer approaching from the opposite direction cannot be seen for a distance of half a mile the pilot of such steamer, when he shall have arrived within half a mile of such cvrve or bend, shall give a signal by one long blast of the steam whistle, which signal shall be answered by a similar blast given by the pilot of any approaching steamer that may be within hearing. Should such signal be so answered by a steamer upon the farther side of such bend, then the usual signals for meeting and passing shall immediately be given and answered, but if the first alarm-signal of such pilot be not answered, he is to consider the channel clear and govern himself accordingly."

3. SPEED.—The rate of speed while passing through the canals shall not exceed four miles per hour.

4. KEEPING IN THE CENTER.—In passing through the canals, the center must be kept all the way through, except in passing other crafts.

5. RAFTS.—The passage of "bag" or "sack" rafts, or loose logs, into or through the canals is prohibited.

Rafts shall be made up with logs parallel to each other in the direction of raft lengths, secured and held closely together by frequent cross-sticks, chains or cables.

Rafts shall not be of greater dimensions, either way, than 50 feet wide by 600 feet long, and if longer than 300 feet, shall be handled by two tugs.

No raft shall pass through the upper canal, i. e., between Lake Superior and Portage lake, unless by special permission of the superintendent or his authorized assistants, who will direct a time for passage that will least interfere with other navigation.

Masters of tugs and other persons in charge of rafts are required to avoid damaging the canal revetments or displacing buoys or spars. They shall keep careful watch when passing aids to navigation and should any be accidentally displaced shall report the fact at the earliest moment to the superintendent or his authorized assistants.

HARBOR OF REFUGE.—In case the upper canal is used as a shelter from storms, all crafts so using it are required to make fast to piles driven in the west bank of the canal, midway between Portage lake and Lake Superior, at a point hnown as "Lily Pond," and except in case of storms, the use of the canal longer than twenty-four hours shall require special permission of the superintendent.

MAKING FAST.—Making fast to the trestles of the elevated walk leading to the pier-head lighthouse, or to the sheet-piling or docking at the sides of the canal, except at "Lily Pond," is strictly prohibited.

8. INJURY TO CRIBS, PIERS AND SHEET-PILING.—Vessels shall use great care not to strike or injure the cribs, piers, sheet-piling or any structure pertaining to the canals.

9. REFUSE IN CANALS.—No person shall roll or throw any stones, ashes, cinders or other material into the canal or the approaches thereto, or place any such material on any bank or berme of the canals, so that it is liable to be thrown or rolled in.

10. DRAUGHT OF BOATS.—No vessel shall enter the canals whose actual draft exceeds the least depth of water in the channels as given by the superintendent.

11. OBSTRUCTING NAVIGATION.—Anyone who shall wilfully or through carelessness in any way obstruct the free navigation of the canals, or by the violation of any of the laws or regulations governing the canals and those using them, delay or inconvenience any boat having the right to use the canals, shall be responsible for all damages and delays, and for all expenses of removing the obstructions.

12, COMMERCIAL STATISTICS.—The masters or clerks of all vessels using the canals (except in case of vessels merely entering to seek a harbor of refuge from storms and not bound through) shall furnish in writing to the superintendent or his authorized assistant, a detailed statement of passengers and cargo carried.

Approved by the Secretary of War.

JAMES F. GREGORY,
April 5, 1892. Major, Corps of Engineers U. S. Army.

Losses Through Need of Lights.

With only a portion of the lake fleet in service, and most of the masters of the big steel boats working under orders to tie up in the Detroit river rather than take the chances of running the channels in the vicinity of the Lime-Kilns' crossing without the private lights that have been maintained in previous years, there is already a record of five accidents within five days, ending on Wednesday last, that can be directly attributed to the absence of these lights. The most important loss is that of the steamer Chicago, compelled to lighter 750 tons of flour and return, loaded, to a Detroit drydock. Other boats encountering the bottom and heavy bills for tug hire were the steamers City of Paris, T. S. Christie, stranded for almost a full day at Bar Point on the 61th inst., and the Horace Tuttle, which occupied a similar bearth on the 19th; also an unknown steamer stranded at Ballard's reef about the same time.

The Proposed General Organization.

In accordance with plans that have been under way for some time past, delegates from associations of vessel owners in the different lake cities met in Detroit on Friday last and after a short preliminary discussion, Mr. Jesse H. Farwell of Detroit presiding, a committee consisting of Capt. J. W. Millen and William A. Livingstone of Detroit, Harvey D. Goulder and James Corrigan of Cleveland, John Rice of Buffalo, C. H. Bradley of Bay City and J. G. Keith of Chicago, was appointed to frame articles of association for a new general organization of vessel owners, the new body if approved to take the place of the Lake Carriers' Association. The committee submitted the following report:

The committee recommends: That a meeting of the Lake Carriers' Association be held at Detroit, April 28, 1892.

1 That at such meeting the constitution of the Lake Carriers' Association be so altered and amended that the scope of its aims and purposes shall include the establishment and maintainance of shipping offices at such ports as shall be required and determined upon and the regulation of wages of crews.

2. That at such meeting, besides any other business which shall properly come up, the following business shall be done:

3. The headquarters of the association shall be established. New officers shall be elected, including a board of managers of not less than twenty-five, or more than forty-five members. The managers shall be diversified in their residence so as to give the various ports fair and equitable representation. The purposes of the association shall be to look after legislation, aids to navigation, fixing of wages of all save masters and maintainance of suitable shipping offices at Buffalo, Ashtabula. Fairport, Cleveland, Toledo, Chicago and Milwaukee, and also, if found necessary at Escanaba and Ashland.

There shall be the following committees:

1. Finance committee of fifteen members, six of whom shall reside in Cleveland and any five of whom shall be quorum to transact business. All members to be notified twenty-four hours in advance of each meeting. Meetings to be held in Cleveland and to be called by order of the president or vice-pressdent or at request of any three members and to report to the secretary.

2. Aids to navigation, fifteen members; six to reside in Cleveland; five to be a quorum for the transaction of business. All members to be notified at least twenty-four hours in advance of each meeting. Meetings to be called on order of the president or vice-president, or at the request of any three members, and to report to the secretary.

3. Legislative committee; fifteen members; six of whom shall reside in Buffalo; five members to constitute a quorum for the transaction of business. All members to be notified at least twenty-four hours in advance of each meeting. Meetings to be called on order of the president or vice-president, or at the request of any three members, and to report to the secretary.

All matters shall be referred to the proper committee by the secretary under the general direction of the president. The committees shall have power to act.

Finance committee shall fix rates of wages, establish shipping offices, and conduct all business of the association on those subjects, and shall control and oversee the finances and regulate the expenditure of money and have charge of all matters not falling within the duties of any other committee.

The committee on aids to navigation shall have direction of all matters connected with the subject of lights, signals, etc.. subject so far only as the expenditure of money is concerned to the action of the finance committee.

The committee on legislation shall have charge over all matters of legislation of a general character not covered by and included in the work of the aids to navigation committee, subject so far only as expenditure of money is involved to the action of the finance committee.

Each committee is to be chosen from the board of managers, so as to give fair representation to the various ports, and whenever delegations are sent to Washington or elsewhere the delegates shall be chosen fairly and impartially from the various ports.

Each committee and all its work shall be under the general supervision of the board of managers. The committees shall go forward in their work as in their judgment they deem best, but at the request of ten members of the board of managers a meeting of the board of managers shall be called at Detroit on three days' notice, stating the object and purpose of the meeting.

A quorum to consist of at least fifteen members present in person, and enough legal proxies to make up a clear majority of all the board. And at such special meeting no business shall be transacted except that mentioned in the call.

At any regular meeting of the board of managers or at any special meeting within the scope of business mentioned in the call the board shall have power to consider and review any action of its committees and to control the same as far as it can be done.

The actual work of the shipping offices shall be under the immediate supervision of the local executive committee of resident members where possible, each to be appointed by the finance committee, if possible, after consulting with the vessel owners of the port where appointed to act. Such local committee may conduct its business as it shall find convenient and desirable, but the association shall look to the local committee as appointed for proper and due supervision of the office.

The expenses of the association shall be borne out of the treasury of the association, under the supervision of the finance committee. Your committee recommends that the necessary funds be raised by a charge of three and one-half (3½) cents per ton on the registered tonnage of members as shown in Inland Lloyd's Register.

We further recommend that at the meeting to be held April 28 the question be considered of incorporating into the work of the association the maintainance of private lights where most needed. Such aid may be reasonably expected from the government that private lights will be replaced by government lights, and the necessity for expense will thus be obviated, except where lights have to be fixed on land on the Canadian side. A charge of one (1) cent per ton, with tonnage not going through any channels where private lights are fixed excepted from the payment, will cover the expense. Your committee further recommends that the association be entirely independent of the local organizations.

The purpose of the organization shall be to establish fair rates of wages, to give steady employment to men and to protect them in such employment: to enable vessels of the membe rs to carry on their legiti mate trade without the dictation or control of others, and in all proper ways to promote the interests of the lake carriers and the improvement of the lake waterways. Your committee further recommend that a circular letter and blank application for membership be circulated before the Detroit meeting, and that as many vessels be enrolled in membership as possible by the date of that meeting, so that, so far as possible the necessary number of officers and managers may be chosen from the parties already members without the embarrassment that might arise from the election of non-members.

It is, of course, understood that members of the Lake Carriers' Associarion as well as the Cleveland Vessel Owners' Association, the two leading organizations at present, desire that the new body shall take up all the work now carried on in different parts of the lakes and the only question is that of a practical working system where so many interests are involved. The plan of organization, which was fully approved at the meeting on Friday last, seems to cover the ground, but there will be time for consideration and citicism before the next meeting. It is expected that tonnage to the amount of 600,000 net registered tons can be secured in the new organization. As it is the intention to elect officers and perfect the association at the next meeting, signatures of vessel owners to a membership agreement are being secured in the meantime. A committee consisting of James Corrigan and H. A. Hawgood of Cleveland, John Rice and Peter P. Miller of Buffalo, Thomas Adams and William A. Livingstone of Detroit, R. P. Fitzgerald of Milwaukee and C. H. Bradley of Bay City, was appointed to consider the question of hull insurance and return any suggestions that are desirable. The appointment of this committee was brought about by a discussion of the action of the underwriters with regard to general average claims on vessels stranding in the rivers and also on account of a proposition to talk up a plan of mutual insurance.

Indications are that the beam engine will have to succumb to the screw engines in the sound and river service at New York. This is no fault of the beam engine, nor a proof of the arguments that have been urged against the type for inland service. It is a result of modern advances in steam engineering, which the beam engine, as a class, could not follow, we mean in high pressures, low expansion and high rotative speed. At least, two first class sound steamers are now being built for screw engines, and there are three ferry boats with screws plying successfully at New York. The fact is not, however, to be viewed so much as an abandonment of beam engines as it is the abandonment of paddle wheels. Hereafter these will be confined to shallow water, which is an avoidable impediment in so far as most tidal waters, but not for rivers. The double screws, when compared with a single one, have lessened draught a good deal, and there seems to be a concurrence of circumstances against our old friend, the beam engine.—Industries, San Francisco.

Send 75 cents to the MARINE REVIEW for a binder that will hold 25 numbers.

Iron Mining.

VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St. Cleveland, O.

Stocks.	Par Value.	Bid.	Asked.
Cleveland-Cliffs Iron Company	$100 00	$.....	$ 75 00
Champion Iron Company	25 00	.....	62 50
Chandler Iron Company	25 00	.....	46 00
Jackson Iron Company	25 00	.....	100 00
Lake Superior Iron Company	25 00	47 00	50 00
Minnesota Iron Company	100 00	.....	80 00
Pittsburg Lake Angeline Iron Co	25 00	150 00	160 00
Republic Iron Company	25 00	.....	21 00
Ashland	25 00	.....	46 00
Section Thirty-three	25 00	.....	6 00
Brotherton	25 00	.....	2 50
Iron Belt	25 00	2 15	.....

A big output during the coming season is again being claimed for the Pioneer mine, Vermillion range, which has been making shipments of a few thousand tons each season for several seasons past.

The Volunteer Company, Marquette range, has reduced its force to 100 men, having more than 100,000 tons on hand with little prospect of selling it, and the Grand Rapids mine on the same range suspended all mining work some time ago.

The sixty second meeting of the American Institute of Mining Engineers will be held in the Lake Champlain region, commencing at Plattsburgh, N. Y., Tuesday evening, June 21, 1892. Arrangements are in progress for visits to mines and furnaces, and a trip into the Adirondacks. The discussion of magnetic iron ore concentration, and also of crushers, granulators and pulverizers, will form a special feature of the sessions, the paper of Mr. Hoffman, read at the Baltimore meeting and describing the Sturtevant mill, furnishing a starting point for debate.

Mr. Charles F. Howe, consulting and mining engineer of Duluth, Minn , was in Cleveland during the week. He talked with most of the ore dealers regarding different properties on the range and the prospects of shipments. Mr. Howe is of the opinion that some ore will be shipped from the range this season over the Duluth & Iron Range Railway, as it is understood that a contract for the Mesaba branch has been let, but of this there is no certainty. Some of the Cleveland sales agents have talked with the owners of the more promising properties on the range regarding the work of handling the ore but this is also a matter of the future. The citizens of St. Louis county, which includes the city of Duluth,have not as yet decided to issue bonds for the bonus of $200,000 proposed for the Duluth, Mesaba & Northern Railway.

"A Fence and Chinese Lanterns."

Under instructions from the light-house board Commander Heyerman, in charge of the Eleventh light-house district, will place a black 25-foot spar buoy to mark the shoal off the mouth of Black river between Port Huron and Sarnia, and a black second class iron buoy at the Detour entrance into St. Mary's river. In January last the Cleveland Vessel Owners' Association recommended a number of additions to the buoyage of Lake St. Clair and the St. Clair and St. Mary's rivers, sending to the board several marked charts showing what was wanted. The board granted the two buoys referred to here but failed to recommend any of a great number of others, without giving a reason for disproval. A report from Detroit says that the buoys were not recommended for financial reasons. Inspector Heyerman, who can be said to be privately of the opinion that the "vessel owners will soon be wanting a fence at Grosse point with Chinese lanterns on it," was, of course, consulted in this matter of additional buoys. Naval officers on the lakes have, as a rule entertained a poor regard for the ability of lake masters, but if assigned to the duty of bringing a vessel of 2,500 tons capacity over Grosse point they would probably find a difference in such a task and that of conducting a light-house tender in the same channel. There will be a repetition of last season's strandings at Grosse point, and before many weeks have passed it will probably occur to those who must suffer losses that the light-house board would have improved matters if more buoys were ordered in the channel. It may be, of course, that the funds were not on hand, but the expense was not great.

Representatives at Washington.

In view of the propoposed general organization of lake vessel owners, attention is again directed to the necessity of having proper steady representation in Washington. In this matter as in everything else pertaining to the general welfare of the shipping interests, there is objection to the attending expense, although the necessity of such service is admitted. The cost of keeping counsel in Washington was an important and burdensome item with the Cleveland Vessel Owners' Association when that body employed Hon. Richard C. Parsons three years ago, and later on it was equally unfair that the Lake Carriers' Association, which was not supported by all vessel owners, should be compelled to pay for the services of Conger & Conger, Washington counsellors, who were employed for some time by that body. That great benefit was derived from having representation of this kind on the ground at Washington, there is no doubt, and now that it is expected that the great bulk of tonnage will be represented in one general body, this service should be renewed. Only those who have been closely connected with the detail attending Congressional legislation can fully understand the subject. An occasional trip to Washington on the part of secretaries or delegations specially selected will not answer the purpose. Although not advocating the appointment of anyone who might be found to do this work, the REVIEW certainly gives expression to the opinion of vessel owners who have always been active in the general welfare, when it is said that at this time more than at any time in the past, there is need of such representation. A dozen important questions are pending today; there are likely to be new and equally important questions springing up almost daily through a session of Congress and before the departments. Take the Chicago bridge, the Chicago river jurisdiction question, the Duluth (proposed) bridge question, the Government pier matter, the regulation of steam vessels, the statistics of lake commerce, the Canadian canal question, and the more necessary but not more important legislation regarding rivers and harbors, aids to navigation by lights, buoys, etc., and it will be seen that there is a field for great work and great possibilities by representation of a continious character by some one on the ground, alert and posted on every detail and phase of every question coming up from day to day. Such a representative would be in position to thwart bad measures almost instantly before they have gained dangerous headway; to explain intelligently such proposed legislation as is attempted by men under mistaken notions of its real effect; to foster legislation which is supposed to be of such commendable character that everybody is for it, but alas, no one is for its success, and in short to vigilantly and intelligently keep an eye on everything covering the great interests involved.

Everybody concerned is fully aware of the good work done in this direction by Mr. Keep of the Lake Carriers' Association and Capt. McKay of the Cleveland Vessel Owners' Association, but the officers of the present organizations can not manage the large interests involved at each end of the line and be in two places at the same time and at important periods. With the increased scope of legislation in the new body, the duties of officers will be increased. They will undoubtedly bear out all that is said here of the need of representation in Washington and they should be supported in any effort that may be made to secure such service.

Send 50 cents to Bond & Co., 576 Rookery, Chicago, and you will receive, post paid, a 400-page advance guide to the exposition, with elegant engravings of the grounds and buildings, portraits of its leading spirits, and a map of the city of Chicago; all of the rules governing the exposition and exhibitors, and all information which can be given out in advance of its opening. Also, other engravings and printed information will be sent you as published.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, ... } PROPRIETORS.
F. M. BARTON, ... }
HOMER J. CARR, - - - Associate Editor and Manager Chicago Office, 210 South Water Street.

Published every Thursday at No. 516 Perry-Payne Building, Cleveland, O.

SUBSCRIPTION—$2.00 per year in advance. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,600 vessels, measuring 1,154,870.38 tons in the lake trade. In classification of this fleet the lakes have more steamboats of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The number of vessels of 1,000 to 2,500 tons on the lakes on June 30, 1891, was 310 and their aggregate gross tonnage 512,787.58; in all other parts of the country the number of this class of vessels was, on the same date, 213 and their gross tonnage 319,750.84. The classification of the entire lake fleet is as follows:

Class.	Number.	Tonnage.
Steam vessels	1,592	756,751.53
Sailing vessels	1,243	325,131.06
Canal boats	703	72,515.42
Barges	62	20,472.37
Total	3,600	1,154,870.38

Tonnage built on the lakes during the past five years, according to the report of the United States commissioner of navigation, is as follows:

	No. of boats.	Net Tonnage.
1887	152	56,488.32
1888	222	101,102.87
1889	225	107,080.30
1890	218	108,515.00
1891	204	111,856.45
Total	1,021	485,042.94

St. Mary's Falls and Suez canal traffic: Number of boats through St. Mary's Falls canal in 1890, 234 days of navigation, 10,557; tonnage, net registered, 8,454,435. Number of boats through Suez canal during 1890, full year, 3,389; tonnage, net registered, 6,890,014.

Entered at Cleveland Post Office as Second-class Mail Matter.

WITH the opening of navigation this spring, owners and masters of steam vessels on the lakes were met with general uncertainty among themselves regarding two matters of great importance in the work of fitting out their boats. The first was the question as to whether they were required, under a law passed by the last Congress, to cause names to be placed on the bows of steam vessels, which already have names on their pilot houses, placed there by law, and the second was in regard to the probable enforcement of an old law, which has always been inoperative, requiring range lights on steamers. In the matter of names on bows of steamers, the inspection service had sent out to local boards a circular declaring that they were not required, under the law, while the collectors of customs in different lake districts had a positive opinion from the solicitor of the treasury in direct contradiction to the order of the supervising inspector, and they instructed all steam vessels as well as sail vessels to comply with the law. Here were two branches of the treasury department sending out contradictory orders, and the only answers vessel owners could get in seeking information from Washington was a copy of the law with the intimation that they were to fathom its meaning themselves. They of course placed names on the bows of their steamers to be on the safe side in the matter, as the expense was not such as to cause great inconvenience, but the question will serve to show the poor method of a department made up of officers who, while seeking to regulate the merchant marine of the whole country, are so far removed from one another in systems and responsibility that they are a source of constant annoyance to the commerce which they seek to govern. But the spectacle of some local inspectors, who of course can not be blamed for failure to understand their duty, ordering range lights on steamers is even worse than the matter of names on bows. For probably ten years or more past this rule calling for a rear light 15 feet above the mast-head light has been printed among the rules of the board but compliance with it had been unthought of, on account of its impracticability on the lakes, until the supervising inspector, following the last meeting of the board, sent out a letter to subordinates on the lakes asking if it was being enforced. There was, as far as can be learned, no order to enforce it, and it is probable that the board would never have known that such a rule existed without enforcement, had not a lake vessel master, Capt. C. H. Westcott of Detroit, been recently appointed a supervising inspector. Capt. Westcott is said to have called attention to the absurdity of this rule being printed year after year in the code of rules approved by the board. The steamboat inspection service, as well as other branches of the treasury department, presents in its operations a strong example of good principles poorly applied, and the sooner the whole matter of shipping regulations is taken from the already over-burdened treasury branch of the government and placed under the supervision of a separate department with practical officers in charge, the better it will be for all concerned.

THERE are many features in the work of the river and harbor committee of the present Congress that are highly commendable and not least among them is the fact that in a bill containing 400 items, which carry appropriations aggregating $21,290,975, based on estimates of engineers amounting to $69,814,945, only twenty-eight of these items are for new projects in the sense that this is the first time appropriations are recommended for them. In this same direction the committee proposes a great saving in authorizing the secretary of war in many instances to make contracts for completion of the more important works. An effort is already being made in the Senate to attach to the bill an appropriation of $500,000 to begin the construction of a canal (which is ultimately to cost $2,500,000) to connect the waters of Lake Union and Lake Washington with Puget Sound. In the probability of a number of such items being tacked onto the bill in the Senate lies the danger of its final passage and only the most urgent of them shonld be given consideration.

PRACTICALLY all of the aids to lake navigation recommended by the light-house board as a result of the bill introduced early in the present session of congress by Mr. V. A. Taylor of Ohio are included in the omnibus substitute, covering aids in all parts of the coontry, reported from the committee on commerce a few days ago by Mr. Brickner of Wisconsin. Vessel owners in all parts of the lakes should write their Congressmen to render all possible assistance to Messrs. Taylor, Brickner and Houk, who are all working very diligently for this measure.

Coast Steamship Interests.

As a result of the introduction in Congress of the measure known as the Frye bill for the regulation of vessels in the merchant marine of the country, the builders of vessels and machinery on the coast, who adopted strong resolutions against the bill, are engaged in an effort to form an organization for the purpose of securing representation for steamship interests in preparation in the future of all laws by which they are to be governed. It is intended also to secure representation on the proposed marine board for the regulation of the merchant marine, if the bill for the establishment of this board should become a law. With these ends in view a meeting will be held at No. 50 Wall street, New York City, on the 26th inst. Lake vessel owners have been invited to send representatives to the meeting, but it is not probable that this will be done, as the lakes have, of course, their own associations at present to take action on such matters, and they will be even better fortified in this direction when the general organization of owners is perfected. The demand of the shipping interests for representation in the preparation of legislation pertaining to the regulation of vessels will, however, meet with approval from the lakes.

Send 75 cents to the MARINE REVIEW for a binder that will hold 25 numbers.

Around the Lakes.

The Welland canal opened on the 19th inst.

Capt. Thomas D. Allen, who was for twenty-five years or more a master of lake vessels, died at Seney, Mich., a few days ago,

The steamer Castalia, owned by Harvey H. Brown and others of Cleveland, was the first boat to pass the St. Mary's Falls canal, April 19, 4 a. m.

The Pope brought down 110,000 bushels of corn on her initial trip of the season. Capt. Shaw estimates that the new straightback building at Wyandotte for Eddy Bros. will carry 170,000 bushels of corn at the ordinary stage of water.—Detroit Free Press.

George Worden Smith of Milwaukee expresses a desire to try his hand at raising the steamer Pewabic's cargo of 300 tons of copper if the Duluth parties now engaged on the work are not successful. He claims to have an apparatus with which he can work in any depth of water.

In our Kingston correspondence last week the word "not" was omitted from an introductory sentence on the question of rebates on canal tolls, thus making it appear as though the Canadian government had allowed a rebate on grain transhipped at Ogdensburg. The contrary is, of course, the case.

The Lake Superior Transit Line will be made up of the passengers steamers India, China and Japan, and the freight steamers Philadelphia and Gordon Campbell of the Anchor Line, and the passenger steamers Idaho, Empire State and Badger State, and the freight steamers Montana and Vanderbilt of the Western Line.

The Cuddy-Mullen Coal Company of Cleveland will engage in the coal shipping business this season as well as of steamboat fueling. Mr. Loftus Cuddy, who has given up banking business at Amherstburg on account of this new departure, will be actively engaged with Martin Mullen in the management of the coal company's affairs.

Capt. C. H. Lane, owner of the schooner Minnehaha ashore at Detour, has made another contract with Wrecker Reid for the boat's release for $7,500. She went ashore last fall and Capt. Reid had contracted to release her by April 1 for $9,000. He was prevented by ice from reaching the wreck in time to carry out the agreement.

The Excelsior Iron Works of Cleveland is constructing for a new fueling boat being built by Pickands, Mather & Co. of Cleveland, two pairs of vertical engines, 8 and 12 inches by 12 inches stroke, and for M. A. Hanna & Co.,of Cleveland a revolving derrick of 3 tons capacity, to be placed on the Ashtabula dock of that company.

On motion of Senator Davis of Minnesota the United States Senate a few days ago directed the secretary of war to transmit a copy of the report of and the proceedings before the board of engineer officers convened for the purpose of considering and determining as to the construction of a bridge across the canal through Minnesota point in the city of Duluth.

The yards of Burger & Burger, Manitowoc, Wis., present as busy a scene as any on Lake Michigan. The Goodrich steamer Atlanta has been in dock for some time and will be followed by the schooner Paige, to go in for a rebuild. By the time she is out the Virginia will go in. One tug and one small hull, mentioned in the REVIEW, will be ready for launching soon and the rebuilt lumber barge will soon go into the water.

With new dock and freight houses on West River street, between Main and Centre streets, the Cresent Transportation Company, formerly Wards Lake Superior Line, is prepared to do an immense Lake Superior business this season. Wharfs are equipped with modern facilities, a railway switch is provided, arrangements have been made for fueling boats while loading and in other ways a special effort has been made to give dispatch to all freight consigned to the company. Six boats in this line have an aggregate capacity of 8,600 tons. Three steamers are dispatched north-bound from Cleveland each week and no freight is delayed on dock over a day. A. E. Thompson is the Cleveland agent.

Col. William Ludlow, light-house engineer at Detroit, opened bids a few days ago for a light-house depot at St. Joseph, Mich. The bids on the depot were as follows: Henry Collins, Detroit, Mich., $18,532; James Collett, Detroit, Mich., $19,800; Joseph L. Gearing, Detroit, Mich., $21,326: Bushnell & Bushnell, Chicago, Ill., $34,420; D. C. Henderson & Co., Chicago, Ill., $25,576; John Peter Smith, Detroit, Mich., $25,637. Bids for furnishing metal work on the structure were: Bryan & Co., Detroit, Mich., $2,565; Russell Wheel & Foundry Co., Detroit, Mich., $2,595; Fulton Iron & Engine Works, Detroit, Mich., $2,881.18; The Cincinnati Architectural Iron Works Company, Cincinnati, O., $2,916.

Secretary Coffin of the light-house board says of the lake light-house bill: "In every case where it provides for a 'steam fog whistle' we have changed it to 'fog signal.' We did this because we are now experimenting with an improvement which promises to be valuable. It is a signal operated by a hot air apparatus, and emits a noise which in still weather can be heard two miles. The first cost is much less than that of a steam whistle, and the expense of operating it is less than one-fifth as much. One of these signals can be kept up at a cost of one cent an hour. If the experiments result as we now expect, the new signal will be substituted generally for the steam whistle. It is a great improvement upon the fog signal known as the 'siren,' now used at some points on the lakes."

Sales of vessel property: Schooner Ishpeming, I. T. Co. of Detroit to Capt. Ripson and William Marsh of Oswego, $6,700; tug I. M. Leathem, Leathem & Smith of Sturgeon Bay to Feltus & Tardwell of Chicago, $8,000; tug Farragut, John Skeldon of Toledo to Alex Reulle of Detroit, $1,300; tugs Birkenhead and Dolan, J. N. Dewey & Co. to L. S. Sullivan of Toledo, $9,000; schooner Minnehaha, C. H. Lane of Buffalo to J. C. Gilchrist of Cleveland, $21,000; steamer R. A. Seymour, Conroe & Wright to Fowler & Preston of St. Joseph, $3,700; steamer E. H. Jenks, Jenks Ship Building Company of Port Huron to Edgerton & Sheldon of Fremont, $6,000; schooner George W. Bissell, Blanchard Transportation Company to John Stevenson of Detroit. Frank Perry, lumber dealer of Sault Ste. Marie, has bought the lumber barges Monterey of Detroit, Josephine of Toledo and Austin of Cleveland and has chartered the Canadian barges Ark, Albatross and Muir of Port Dalhousie for pulp wood trade from the Sault.

Notices to Mariners.

A Racine correspondent says: "The black buoy usually located on the reef about 1½ miles east S. E. of this harbor is, judging by the breakers, fully half a mile inside of where it ought to be. There is to all appearances deep water where the buoy is now located and vessels can run no risk in running inside of it."

In announcing that the Grosse point light-ship and the Grosse point beacons are in operation, Commander Heyerman says that vessels should give the light-ship a berth of about 400 feet when the best water will be found. Soundings show 15 feet of water in the channel between the light-ship and the beacon.

Vessel masters should make arrangements to get from the light-house board at Washington, or from the light-house inspectors at Duluth, Chicago and Buffalo, copies of the bulletins issued monthly by the board on changes in aids to navigation. These bulletins are supplemental to the lists of lights, fog-signals, beacons and buoys in the United States and contain the latest information regarding changes. The bulletin of April 1 notes the several changes made recently in lights, buoys, etc., at Green Bay, Beaver island, Lake Michigan, St. Joseph, Mich., and the Straits of Mackinac.

Night Signals.

Congressman McMillen has introduced in the House a bill, No. 8,121, directing the secretary of the treasury to supply all revenue marine and light-house vessels, tenders and light-ships, with Coston signals of distress. The bill makes no reference to vessels of the merchant marine. These signals are in use in the life-saving service and they are valuable for the purpose for which they are intended. The bill, which was referred to the the committee on commerce, is introduced by "request" and its chances of passing are lessened accordingly. An appropriation of $8,000 is called for by the measure.

First Total Loss.

The small steambarge W. S. Ireland was burned at Wallaceburg, Ont., Monday. She was owned by John Cooper and had just been fitted out for the season's work. She was valued at $6,000 and insured for $3,000.

An Engineers' Yarn.

It was in the steamship Kangaroo I sailed for a foreign clime, on a date which shall be known to you as "once upon a time." Now each of the mates and skipper had, strange as it may seem, been polishing up their figures, and had gone and passed in steam; while I and the other engineers, all hot with emulation, got passed in navigation. Now the skipper and I in a general way, got on very well together, for we'd shipmates been for five long years in every sort of weather; but he was a curious sort of a cuss and possessed a powerful notion, that he knew enough of mechanics to discover perpetual motion; while as for engineering, why to guess by the yarns he told, he'd been driving a triple expansion before he was ten years old. As for me I was somewhat nettled at this exaggeration, so to be as big a liar as he, I bragged of navigation—how many a night on the wave-swept bridge, when the howling tempests blew, I had conned and steered on her nor'east course the ship and her gallant crew. So we nagged and nagged and lied and bragged, till —"I'll tell you what," says he, "we'll never settle anything by argument, d'ye see; you take the bridge and keep her course,and take your crowd as well, and I and the mates we'll go below—we'll make those engines yell." "Agreed, agreed! A grand idea! The best I've heard of yet; I'll keep this packet on her course, and steer her straight, you bet. So skipper and I went down below, when I showed him a thing or two—the donkey checks and the extra feed, as we passed them in review; the swabbing tins, and all the rest, but he got in quite a huff—"Get you on deck," says he, "I'll manage her right enough." So up I went to the flying bridge where the second was in full charge, enjoying himself in the sunlight, for the day was fine and large. Says I, "now steer N. E. by E. across the foaming tide, and look out sharp for the Bunkum rocks ahead on the starboard side." Then I went down for an hour or so, as I thought I deserved a spell, and slept like a top, and arose refreshed at the clang of the quarter-bell. The sea was smooth, but a sort of a mist was hanging about overhead, and of all the dangers of the deep, a fog is the one I dread. As I passed the doors of the engine room, the sounds I then did hear, would have paralized Paladin and filled his heart with fear; for the rods and valves were shrieking like fiends at the whipping post, while the stink of the heated bearings would have poisoned Hamlet's ghost. Amidst the up-roar down below, it made my heart go thump, when the skipper yelled to his wretched mate that the bilge-pump wouldn't pump. However, away I went to the bridge, as the mist was closing round, till it got so thick that presently I deemed it wise to sound; which I did, and got ten fathoms, and presently nine or so, as it's thick and the water's shallow, why I guess I'd better slow. So I put the telegraph over, but the din which arose when I got the pointer fair on the signal, would have rent the very sky. The fog closed in, and just ahead, I thought I heard a bell, so I sent a man to the whisle cord at intervals to yell. I was fretting about the engines, and knew I could safely swear that things weren't going right below, although I wasn't there. I was meditating stopping, for my wits were all abroad, when—no need to ring the telegraph—she stopped of her own accord! So down I rushed to the engine room, full of foreboding fears, where the sights and smells which met me would have moved a man to tears. The bilges were full of water, the boilers were nearly dry, the low pressed rod was black as ink, and ditto was the high; the bearings they were blazing hot, the pins, oh! Julius Ceasar! They'd been trying to drive the engines, but had never thought to grease her! So I chased the lot away on deck, and yelled like one insane, and got the pins and bearings cooled and boilers filled again; the bilge-pumps next I got to work, to chuck it out full bore, and soon the fog cleared off and we were going full speed once more. So you may safely bet your boots from now till crack of doom, no mate nor skipper passed in steam takes charge of my engine room. While as for navigation, it's all very well in its way, but as different from practical seamanship as night is apart from day. No navigating job for me, I'll frankly, freely own, I'll keep my engines up to the mark, but—I'll leave the bridge alone.—Marine Engineer, London.

Affairs in Admiralty.

Judge Wallace of the United States circuit court of appeals, second circuit, heard a case a short time ago in which a barge, while being towed through a channel with a hawser 100 feet long, sheered from the course of the tug and struck on submerged rocks,causing her to sink. The pilot of the tug was unfamiliar with the obstructions of the channel and allowed the tow to go too far to westward of the safe course. The court held that the loss of the barge was properly found to be due to the negligence of the tug.

Circuit Judge Wallace of New York upheld the district court of the southern district, same state, in a collision case of some importance recently. The tug Titan, moving slowly with two car floats alongside, entered the East river near the New York shore. The steamer Francis was coming down the river at a speed of 12 knots. The boats being about end on, the Titan ported her wheel and was about to signal to pass port to port, in accordance with the thirteenth rule of navigation, when the Francis signalled her to pass to starboard, and shaped her own course to port. The Titan immediately assented, put her wheel hard a-starboard and stopped ; but owing to her previous action she continued to swing to starboard. The Francis proceeded on her course to port until within 200 or 300 feet, when she repeated the signal and altered her course still more to port, but could not do so sufficiently, and collided with the tow of the Titan. The court held that in departing from the statutory rule the Francis took the responsibility of passing safely to starboard and, as the Titan did all she could to comply with the signals, she was not in fault.

A New Boiler Tube Cleaner.

An engraving accompanying an advertisement in another part of this paper shows a boiler tube cleaner of special merit. It is known as the Baldwin vacuum boiler tube cleaner and it is being placed on the market by the Oliver P. Clay Company of Cleveland, sole agents for the United States. By its use a vacuum is formed in the tube to which it is applied and the hot gases rush through the tube with sufficient velocity to perfecrly clean it for its entire length, discharging the soot through the stack into the air, thereby doing away with the disagreeable work of cleaning out the back connection. Robert S. Hay of the Globe Iron Works Company, Cleveland, says it is the best tube cleaner that company ever used. He says it will be the thing to use on marine boilers as it is peculiarly adapted to that purpose.

Trade Notes.

The ship chandlery business of Rand & Roemer, Manitowoc, Wis., is now conducted by Paul Olson, formerly with that company. Five men are at work in the new sail loft on sails for the Paige, Genoa and Southwest, and as agent Mr. Olson has sold stearing gears for the Edward Buckley and two of Hart's boats.

The Lunkenheimer Brass Manufacturing Company of Cincinnati is preparing for the World's Fair a most elaborate display of their specialties in valves, sight feed lubricators, oil and grease cups, etc. A complete line of brass and iron goods, besides some novelties in steam whistles and sight feed lubricators will also be exhibited by this company.

L. P. & J. A. Smith of Cleveland have contracted with Charles Ward of Charleston, W. Va., for a Ward boiler 53 square feet of grate for one of their dredges. Ward boilers are also being built for the light-house tender Grace Darling, 40 square feet grate, and for the revenue marine steamer Hudson, 74 square feet grate, besides some thirty launch boilers and a new style generator having 45 square feet of grate and 2,225 square feet of heating surface for naval use.

Official Numbers and Tonnage.

The bureau of navigation, E. C. O'Brien, commissioner, assigned official numbers to the following lake vessels during the week ending April 16: Steam—Uganda, Erie, Pa., 2,053.57 tons gross, 1,708.61 net, No. 25,289; Frank C. Barnes, Grand Haven, Mich., 46.34, tons gross, 29.29 net, No. 120,894. Sail—Leader, Port Huron, Mich., 31.85 tons gross, 35.25 net, No. 141,195.

The captain shouted to the man at the wheel, "Another p'int a-port, quartermaster!" "How shocking," exclaimed a lady passenger to her friend. "I must get the captain to sign the pledge, for this is the third pint of port he has called for within the last ten minutes. How these captains do drink!"—London Fairplay.

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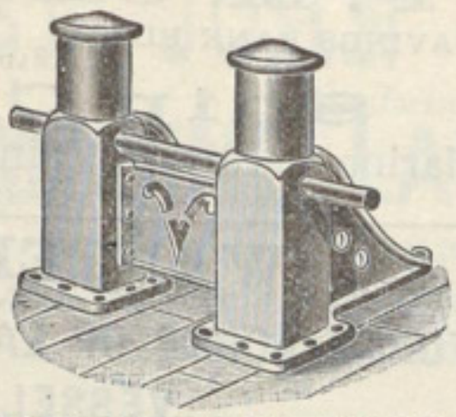

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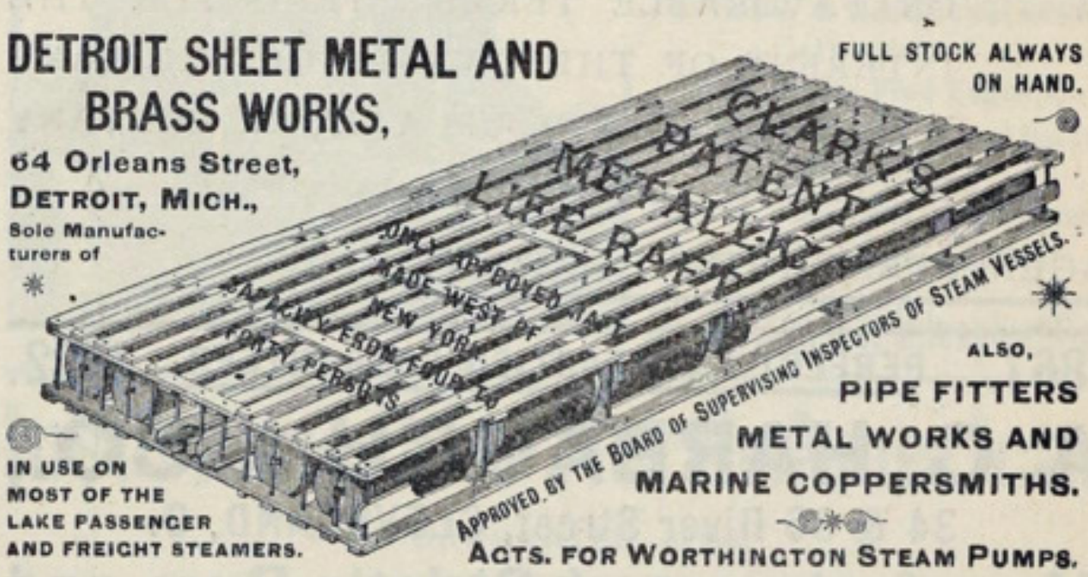
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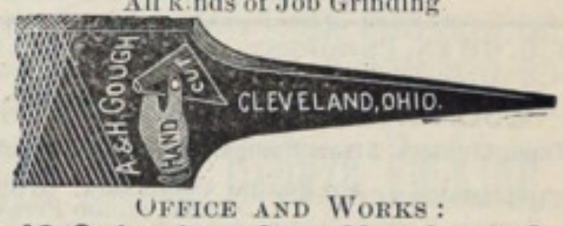

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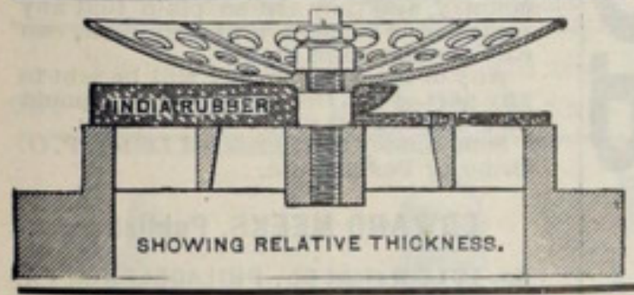

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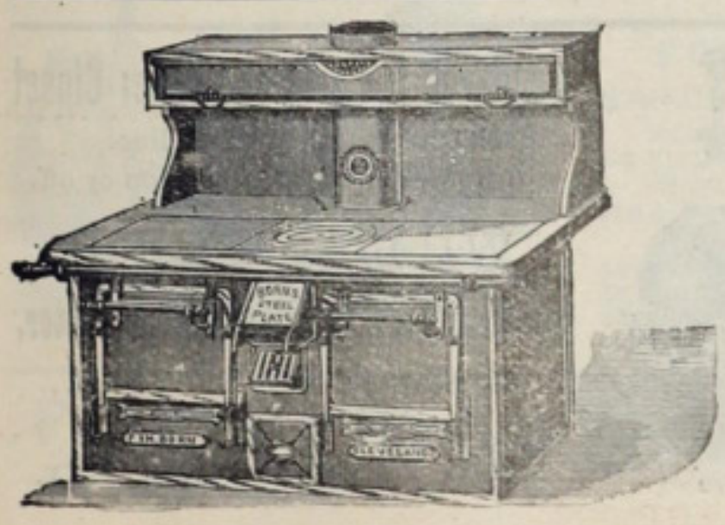

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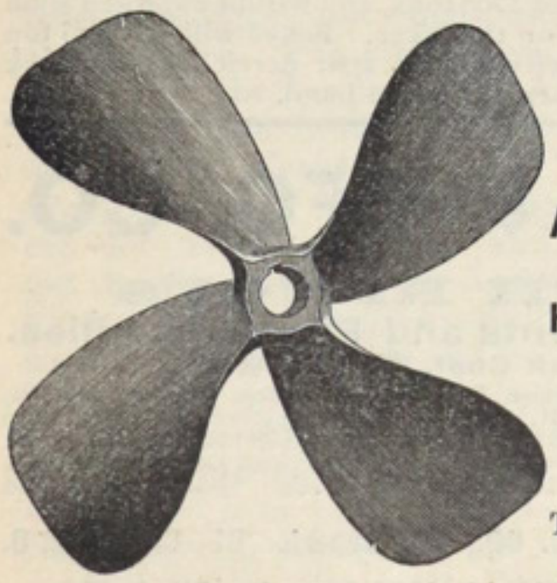

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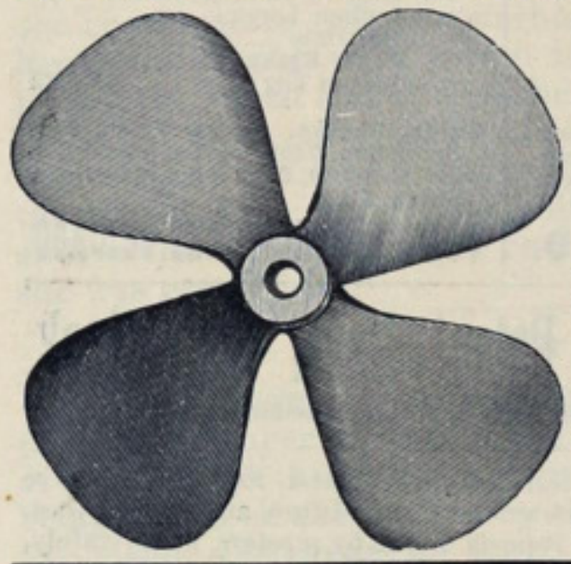

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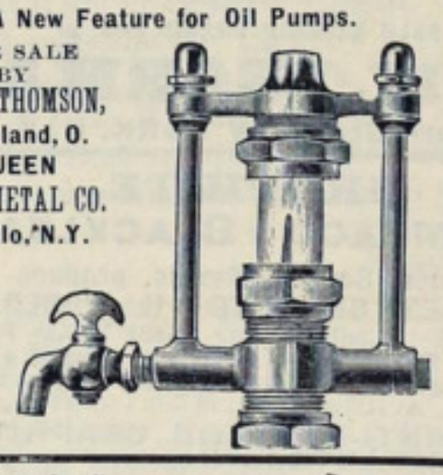

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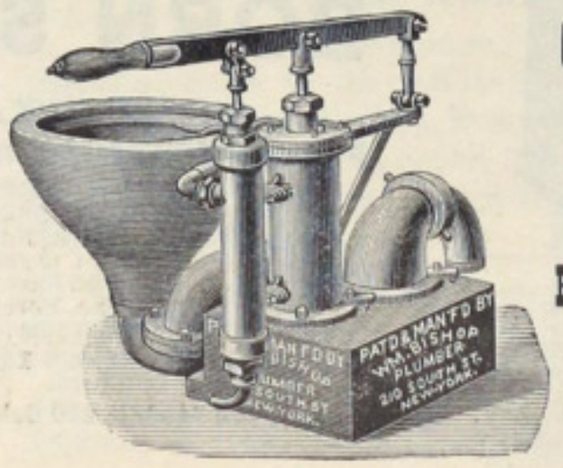

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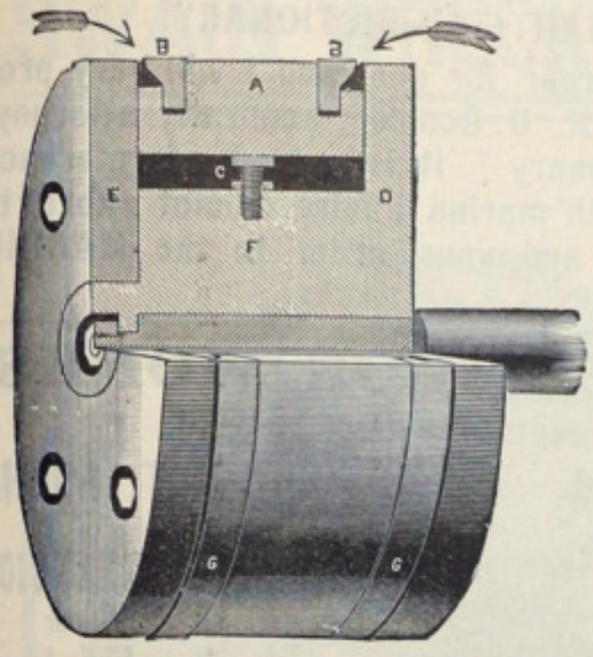

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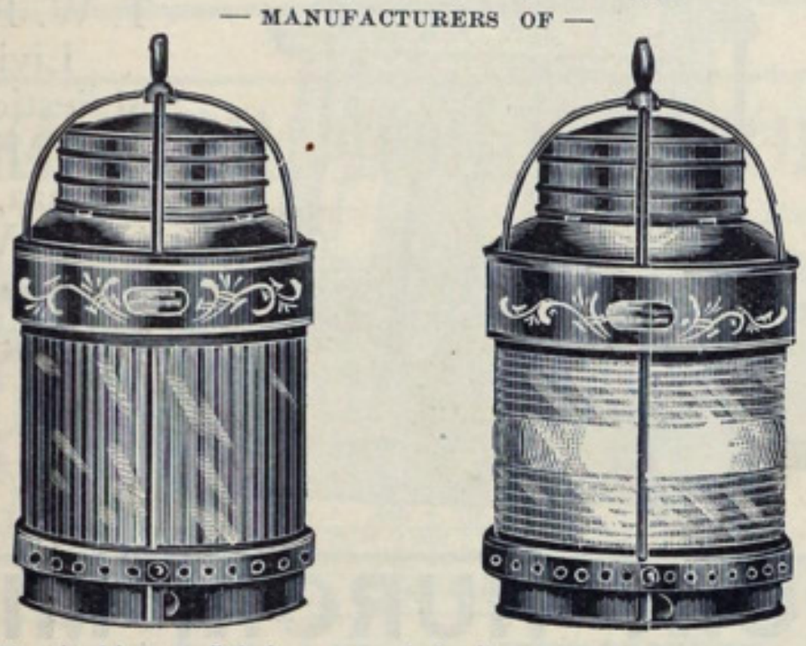

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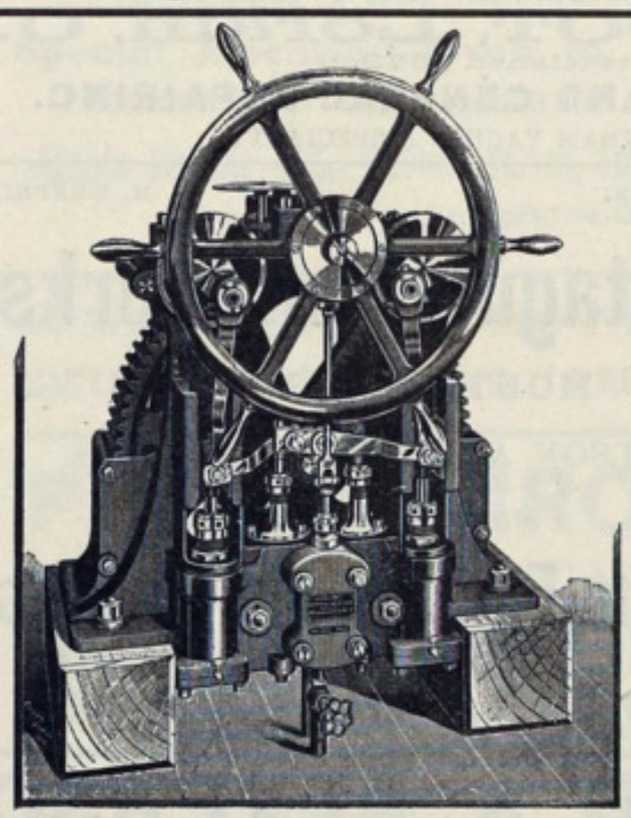

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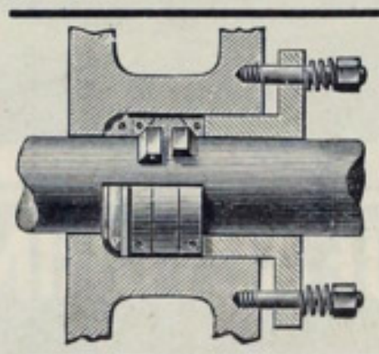

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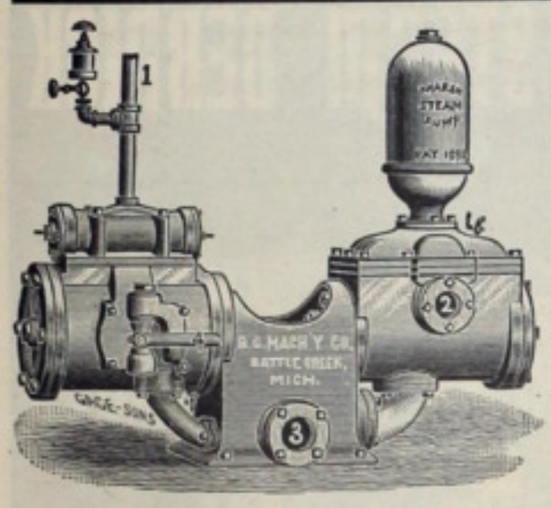

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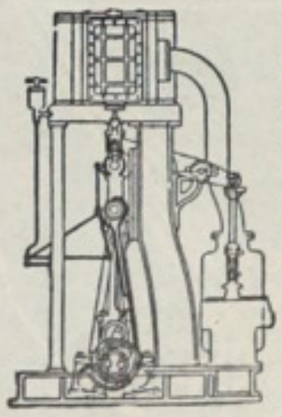

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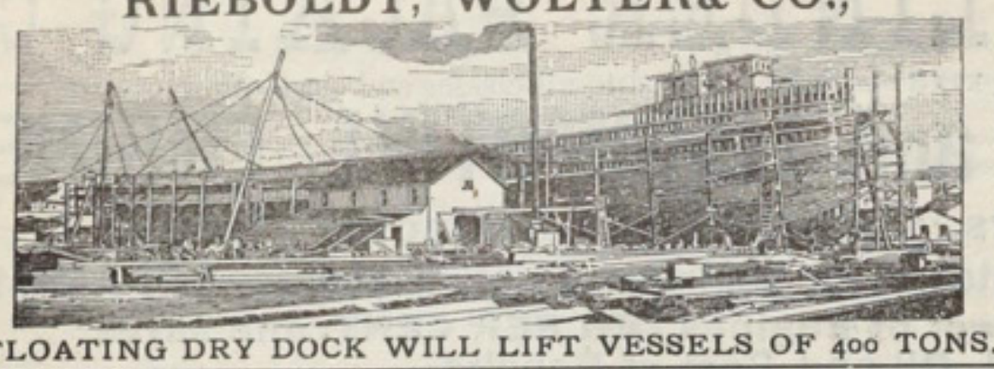

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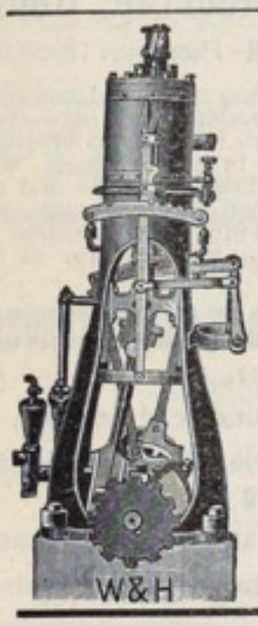

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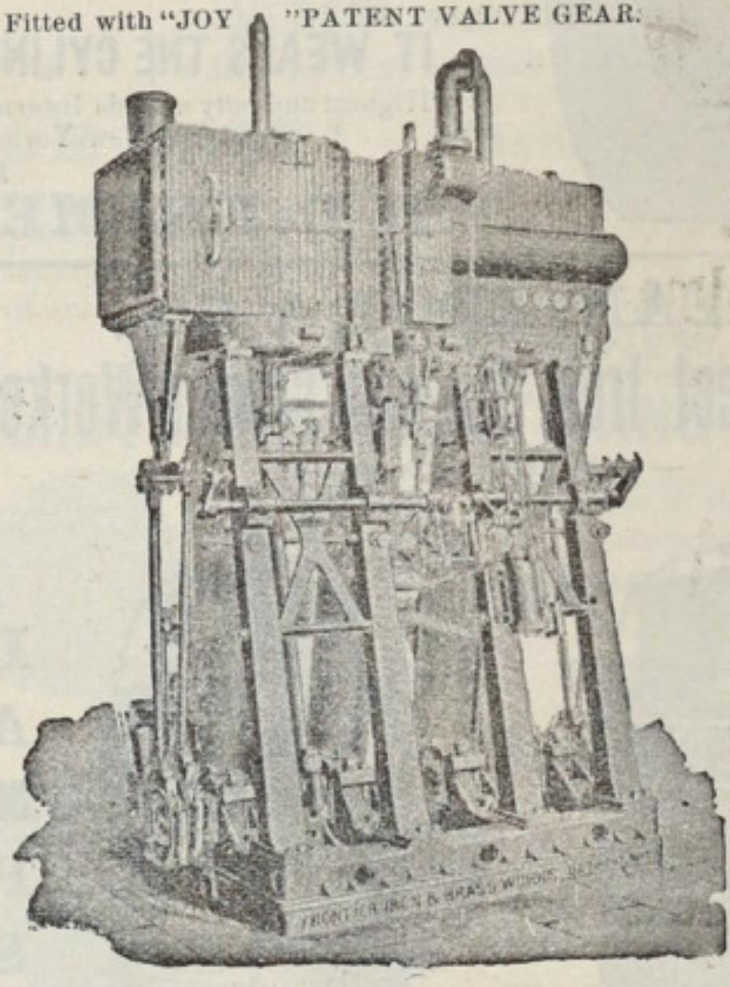

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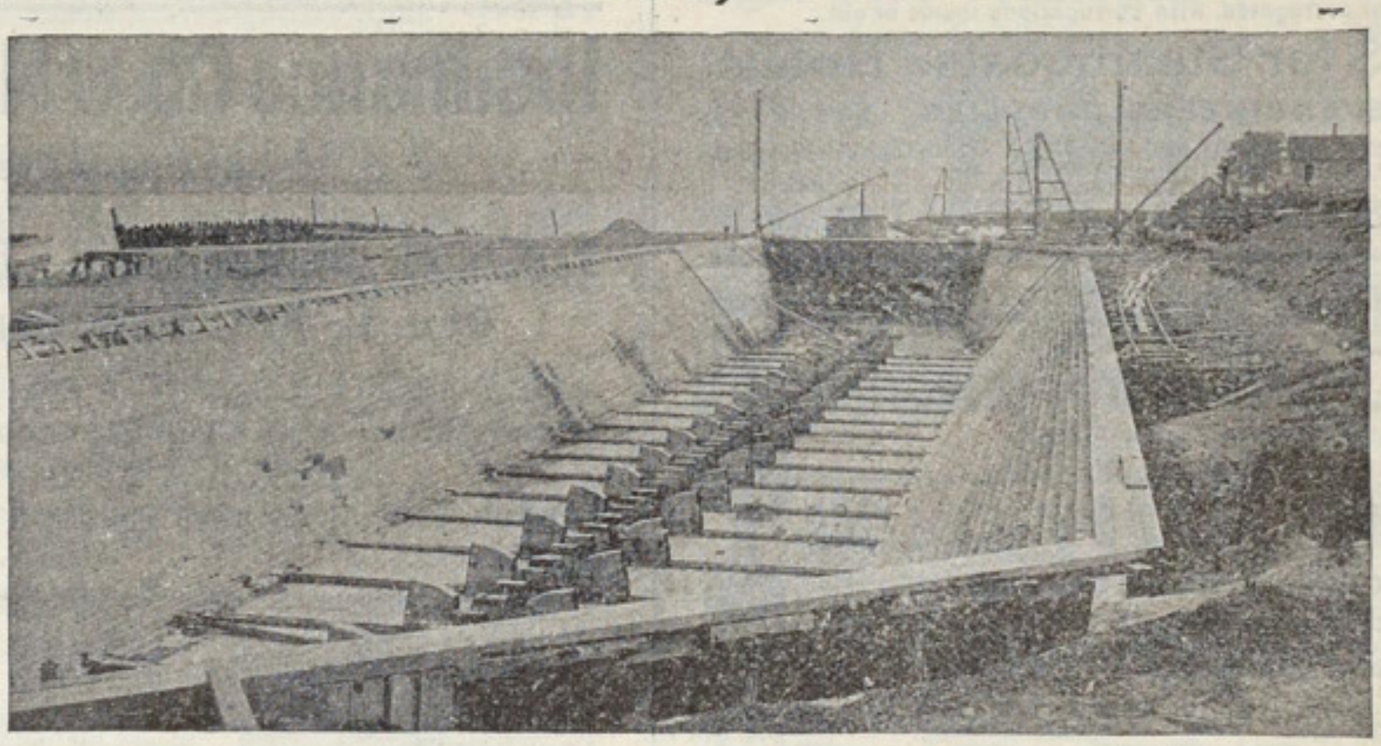

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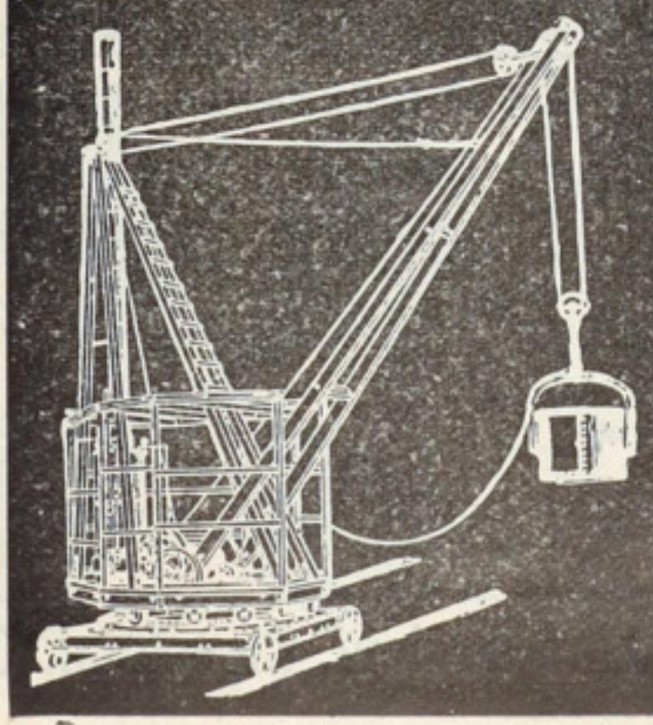

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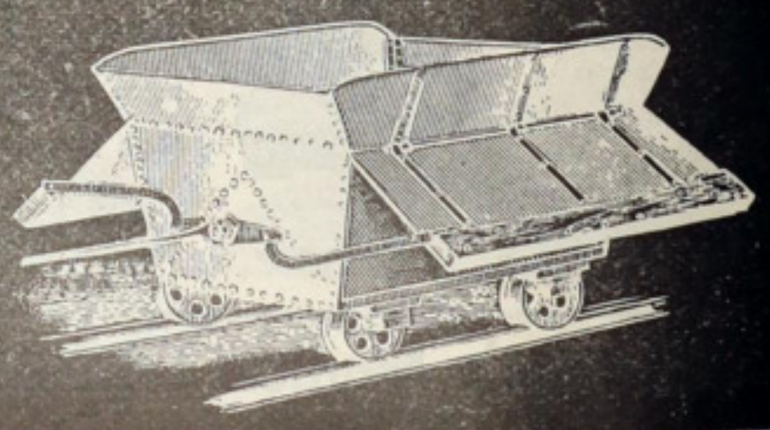

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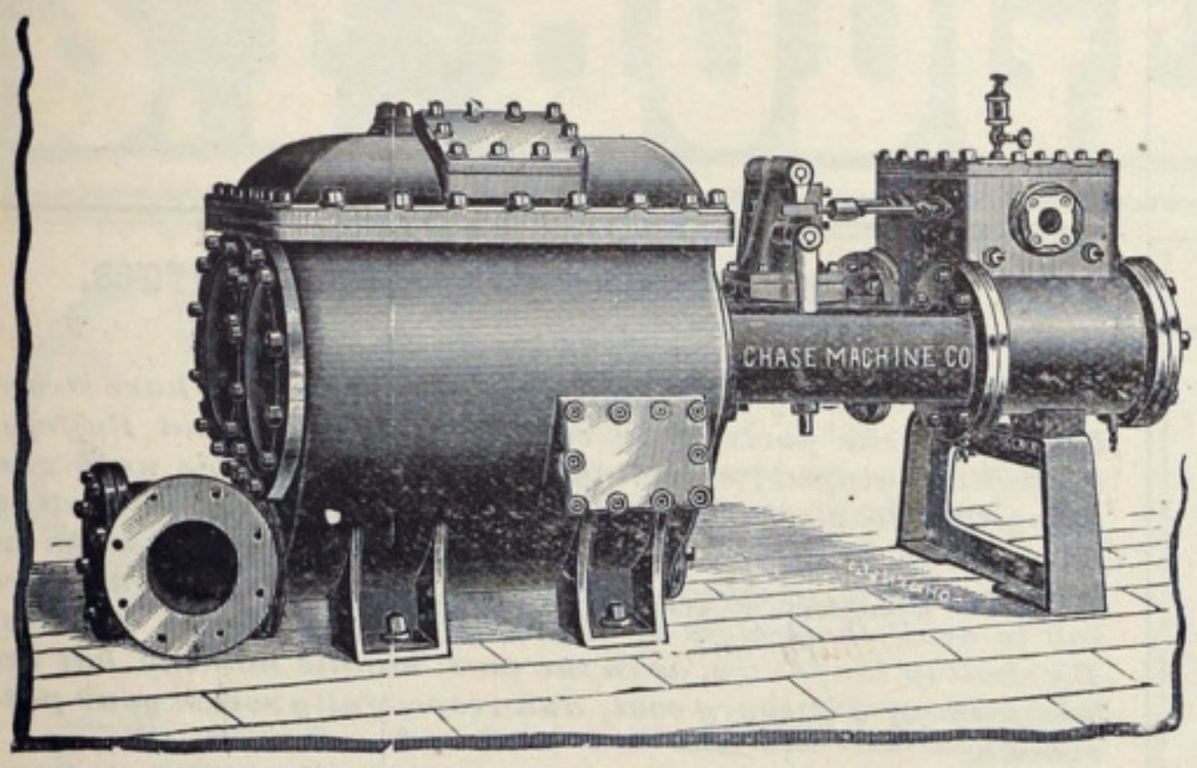

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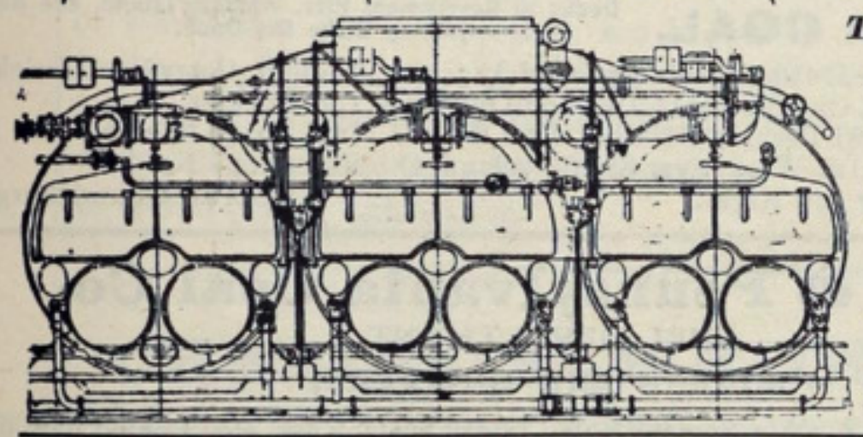

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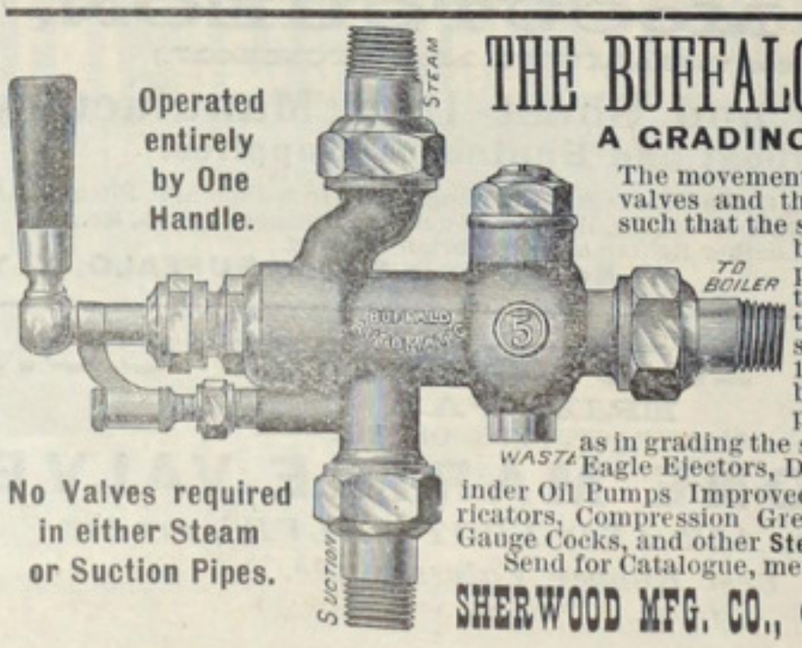

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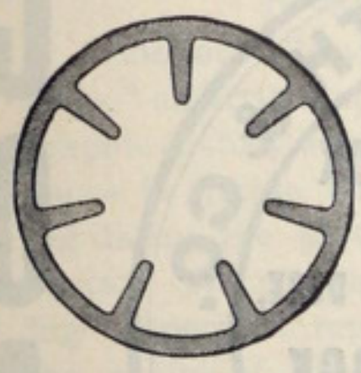

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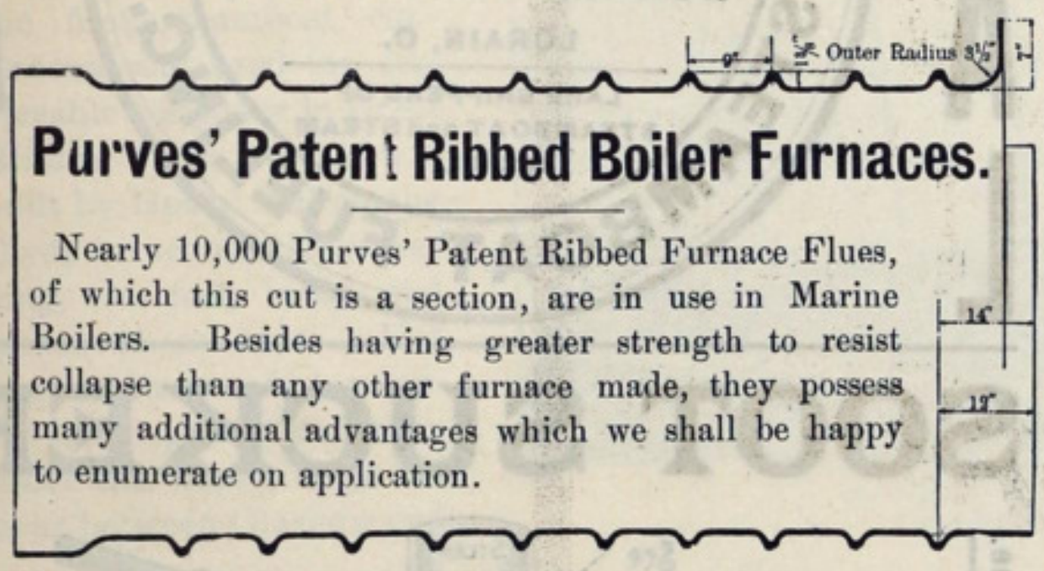

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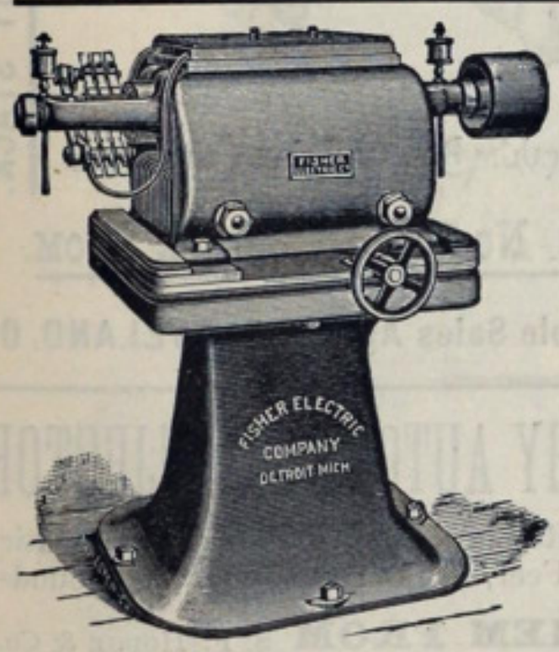

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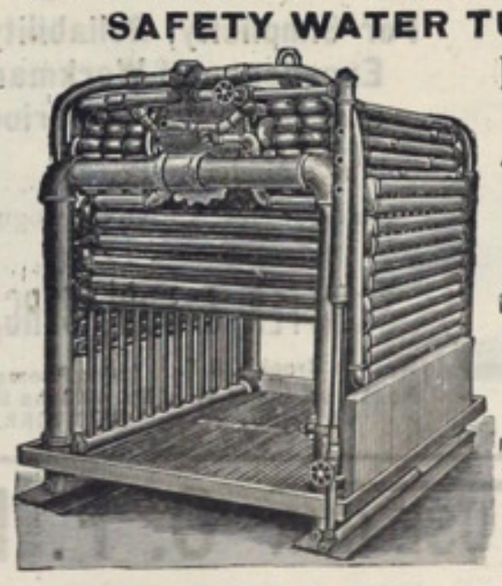

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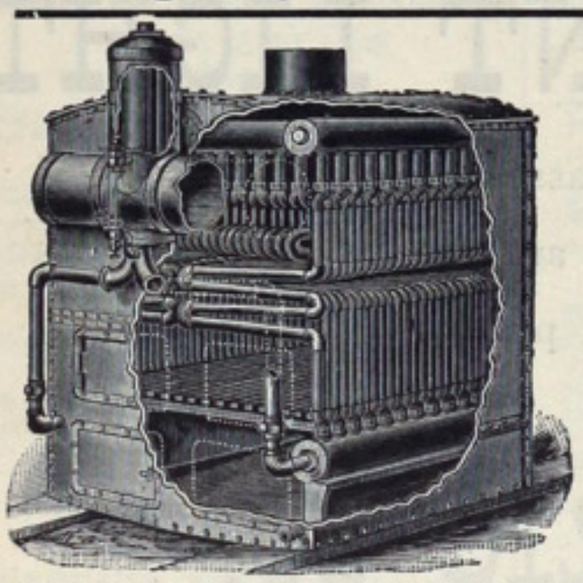

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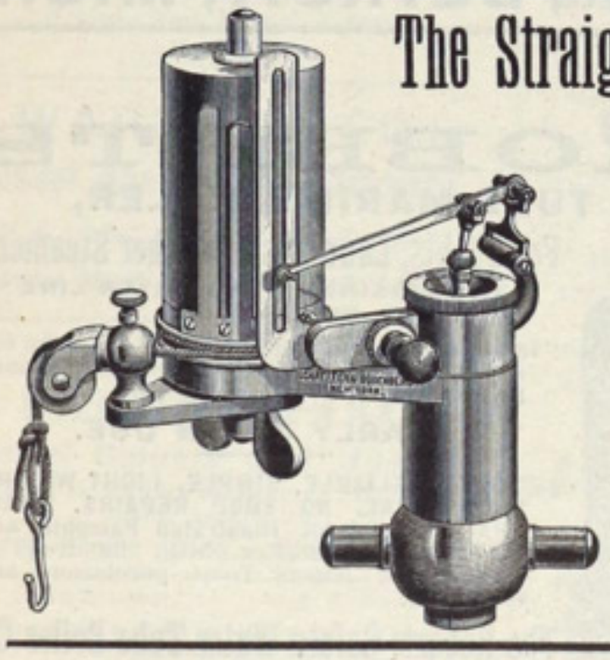

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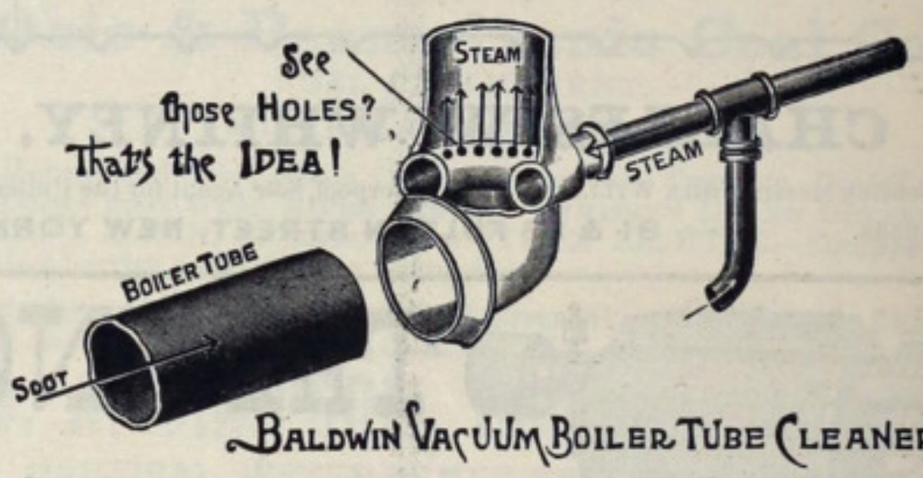

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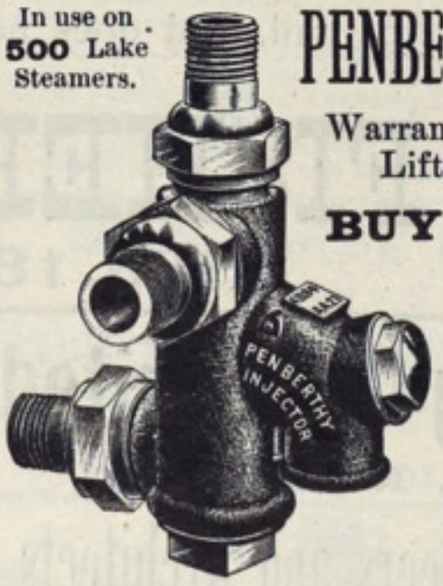

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